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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/167,705	10/06/98	SCHMIDT	A 55873JPWJML

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HM22/1218

EXAMINER

ANDRES, J

ART UNIT

PAPER NUMBER

1646

DATE MAILED:

15  
12/18/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

<b>Office Action Summary</b>	Application No. 09/167,705	Applicant(s) SCHMIDT ET AL.	
	Examiner Janet L Andres	Art Unit 1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 47-52 and 55-68 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 47-52 and 55-68 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

**Attachment(s)**

- |  |  |
|--|--|
| 15) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 18) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____   |
| 16) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                          | 19) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 17) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>14</u> . | 20) <input type="checkbox"/> Other:  |

### **DETAILED ACTION**

1. Applicant's amendment of October 10, 2000 in paper no. 14 is acknowledged. Claim 54 is cancelled and claim 47 is amended in response to applicant's amendment. Claims 47-52 and 55-68 are under consideration.

#### ***Claim Rejections/Objections Withdrawn***

2. The objection to claim 54 as depending from a non-elected claim is withdrawn in response to applicant's cancellation of claim 54. The rejection of claim 48 under 35 U.S.C. 112, first paragraph, as lacking enablement commensurate with the scope of the claims is withdrawn in response to applicant's arguments. The rejection of claim 50 under 35 U.S.C. 112, second paragraph, as indefinite in the recitation of "consisting essentially of" is withdrawn in response to applicant's argument.

#### ***Claim Rejections/ Objections Maintained/New Grounds of Rejection***

3. The objection to the use of the word "novel" in the title is maintained. Novelty is a legal concept and does not describe the invention claimed. Novelty is required of all claimed inventions before they are issued as patents. To use the term in the title would imply merit in this regard without actual examination. Accordingly, though MPEP 606.01 does not specifically refer to "novel", "novel" is similar to the term "improve" in that also implies merit without examination.

4. The rejection of claims 47, 49-52 and 55-68 under 35 U.S.C. 112, first paragraph, as lacking enablement commensurate with the scope of the claims is maintained. Applicant argues that the disclosure is enabling for the full scope of the claims, and cite pages 27-35. Applicant's arguments have been fully considered but are not found to be persuasive. Pages 27-35 describe

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methods using anti-EN-RAGE, anti-RAGE, and s-RAGE as inhibitors of inflammation. The examiner agrees that the specification is generally enabling for inhibition of inflammation by inhibition of RAGE/EN-RAGE interactions using anti-EN-RAGE, anti-RAGE, or s-RAGE. The examiner further agrees, in response to applicant's arguments, that the specification is enabling methods using anti-RAGE and s-RAGE to inhibit inflammation by inhibiting RAGE/EN-RAGE interactions. The examiner also agrees in response to applicant's arguments that vectors and viruses are recognized in the art. However, the claims are drawn to methods using any compound that interferes with binding between RAGE and EN-RAGE, including peptides and antibodies of unspecified specificity, as well as unspecified chemical compounds. Applicant argues on pages 12-15 that the scope of enablement in the specification need only bear a reasonable correlation to the scope of the claims. This argument is not found persuasive. It is not the "truth or accuracy" of applicant's disclosure that is challenged, as is discussed on p. 13 of applicant's arguments, but rather the extent to which the disclosure supports the claimed invention. The scope of enablement in the specification does not in fact bear a reasonable correlation to the full scope of the claims. Applicant has not provided sufficient guidance for one of skill to make and use this invention as broadly claimed. The specification discloses only antibodies, while the claims encompass all other inhibitors of RAGE/EN-RAGE interaction. While these compounds that interfere with RAGE/EN-RAGE interaction might reasonably be expected to inhibit inflammation, no guidance is present as to what the characteristics of such compounds might be, so that one of skill could predictably make and use them. There is no information as to the regions of either protein that are important for binding that would allow one of skill to determine what compounds might interfere with binding. "s-RAGE" is merely the

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extracellular domain of RAGE; there is no guidance as to what regions are important for interaction with EN-RAGE and thus no basis for the identification of any similarly-acting compounds. No "ligand-binding domain" of either protein is set forth in the specification. No possible targets for any other antibodies are specified. Further, while recombinant techniques and combinatorial libraries are available, it is not routine in the art to screen large numbers of molecules, either peptides or small molecules, where the expectation of obtaining the desired activity is unpredictable. Thus without further guidance as to the structural and functional features of compounds that would interfere with RAGE/EN-RAGE interactions, it would require undue experimentation for the skilled artisan to practice the invention as broadly claimed

5. Claims 47, 49-52 and 55-68 are newly rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. As stated above, these claims are drawn to methods using any inhibitor of RAGE/EN-RAGE interaction. Thus the claims encompass a wide variety of molecules with diverse structures and mechanisms of action. However, applicant has not set forth any defining characteristics of such molecules. No common structural or functional features essential for the claimed function are described, nor are a representative number of members of the claimed genus of inhibitory molecules presented. No regions or characteristics of either of the two proteins important for interaction, which would serve to identify a genus of inhibitors, are defined. No characteristics of antibodies other than anti-RAGE and anti-EN-RAGE are described. No features of any other type of inhibitor are described. Thus one skilled in the art would thus not conclude that applicant was in possession

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of the broadly claimed genus of compounds affecting RAGE/EN-RAGE interactions and thus of methods using these compounds.

6. The rejection of claims 47-52 and 55-68 as indefinite under 35 U.S.C. 112, second paragraph, is maintained. Proteins and nucleic acids should be referred to by the identity number of an entered sequence in order to distinctly and unambiguously identify the protein. While the name itself may have some notion of the activity of the protein, there is nothing in the claim that distinctly identifies the protein or encoding nucleic acid. Others in the field may isolate the same protein and give it an entirely different name or give the same name to a different protein.

Describing biochemical molecules by a particular name given to the protein by various workers in the field fails to distinctly identify what the protein is.

7. The rejection of claims 47-52, 56-59, and 61-66 under 35 U.S.C. 103(a) as unpatentable over Hori et al. or Morser et al. in view of Ritthaler et al. is maintained and newly applied to claims 55, 60, 67, and 68. Applicant argues that none of the cited references contemplate EN-RAGE and thus do not render the instant invention obvious. The examiner agrees that none of the reference cite EN-RAGE. However, the claims also encompass s-RAGE and antibodies against RAGE. While the claims are drawn to methods of affecting RAGE/EN-RAGE interactions, this limitation is a limitation on the mechanism with no corresponding method step to achieve that limitation. It is not necessary that the claimed invention be expressly suggested in any one or all of the references to justify combining their teachings; rather the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art *In re Keller*, 642 F.2d 413, 288 USPQ 871 9ccpa 1981). s-RAGE and anti-RAGE antibodies are taught by Morser et al. and Hori et al., and involvement of RAGE in inflammation is taught by

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Ritthaler et al. Hori further teaches cytokine regulation of RAGE, particularly implicating TNF-alpha (p. 692) and specifically addresses atherosclerosis (p. 688). Morser et al. implicates the RAGE ligand AGE in inflammation (column 1, lines 56-54). Thus it would have been obvious to one of ordinary skill to use s-RAGE or anti-RAGE to inhibit inflammation. One of ordinary skill would have been motivated to do so because the role of RAGE in inflammation is taught by Ritthaler et al.; the discovery of a novel mechanism of action does not render the method itself unobvious. The rejection of these claims under 35 U.S.C. 103(a) is therefore maintained because it would have been prima facie obvious to one of ordinary skill in the art to combine the teachings of Morser et al. and Hori et al. with those of Ritthaler et al. to use s-RAGE or anti-RAGE to inhibit inflammation.

NO CLAIM IS ALLOWED.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janet Andres, Ph.D., whose telephone number is (703) 305-0557. The examiner can normally be reached on Monday through Friday from 8:00 am to 5:30 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler, Ph.D., can be reached at (703) 308-6564. The fax phone number for this group is (703) 305-3014 or (703) 308-4242.

Communications via internet mail regarding this application, other than those under U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [yvonne.eyler@uspto.gov].

All Internet email communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark Office on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Janet Andres, Ph.D.  
December 17, 2000

  
YVONNE EYLEY, PH.D.  
PRIMARY EXAMINER